This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

As rescanning documents *will not* correct images, please do not report the images to the Image Problem Mailbox.

OIPE JC25
MAR 0 8 2004
PATENT & TRADEMARK OFFICE

Title: Rapid Solidification Processing System for Producing Molds, Dies and Related Tooling
Atty Dkt #: EGG-PI-612A1a
Invventor: Kevin M. McHugh
Atty: Alan D. Kirsch
Phone: 208-526-1371

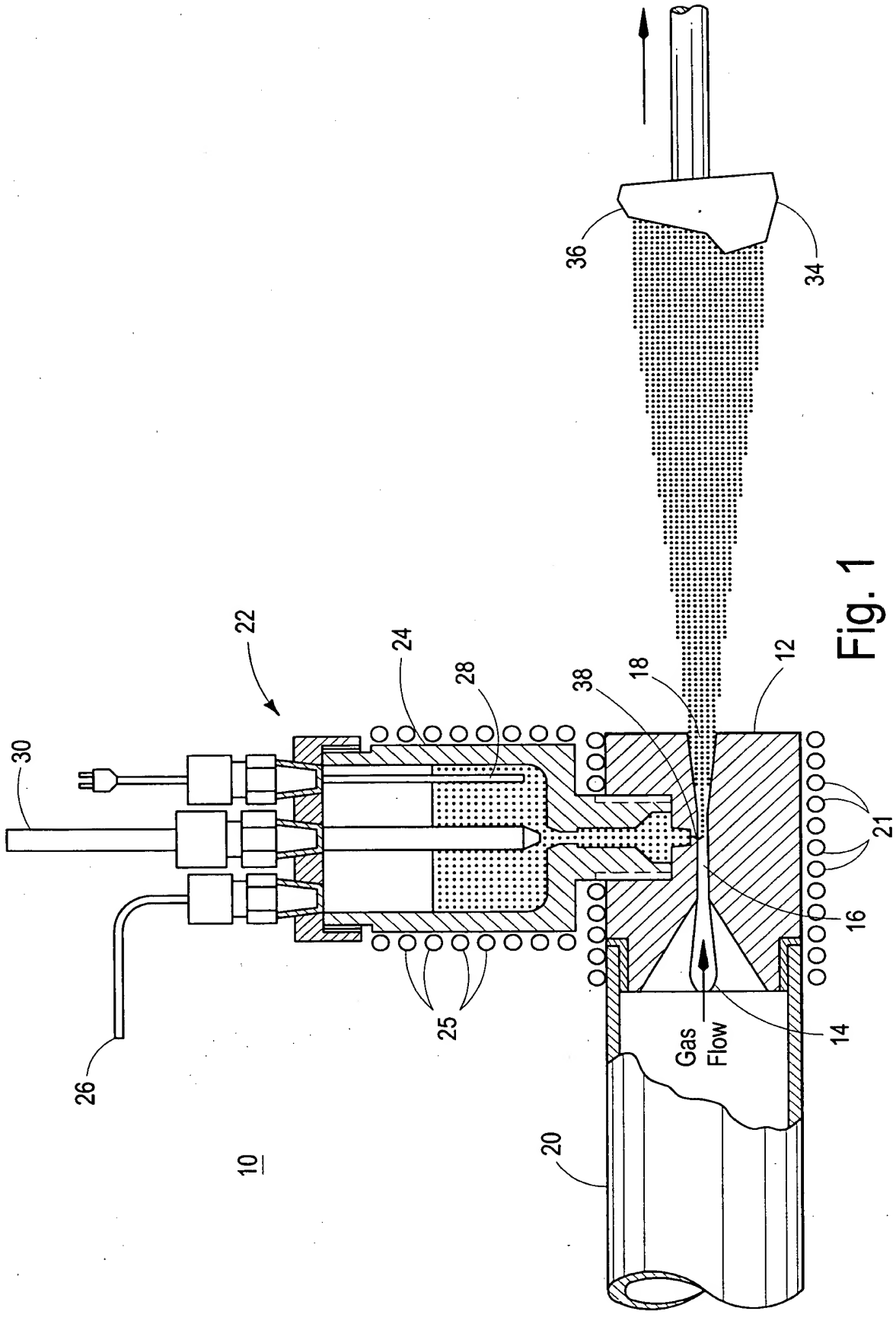


Fig. 1

OIPE
MAR 0 8 2004
PATENT & TRADEMARK OFFICE

Title: Rapid Solidification Processing System for Producing Molds, Dies and Related Tooling
Atty Dkt #: EGG-PI-612A1a
Invventor: Kevin M. McHugh
Atty: Alan D. Kirsch
Phone: 208-526-1371

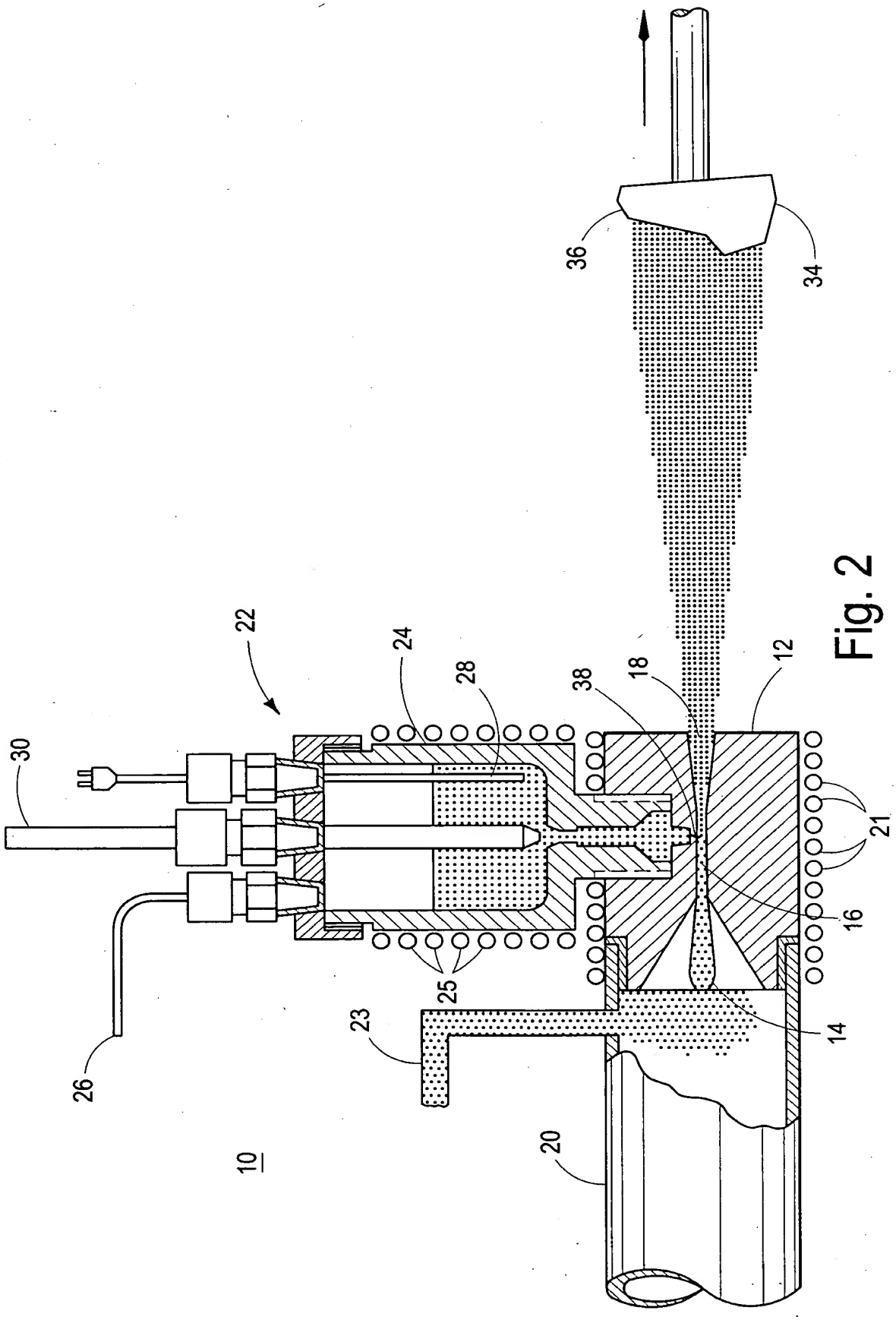


Fig. 2

OIPE JC25
MAR 0 8 2004
PATENT & TRADEMARK OFFICE

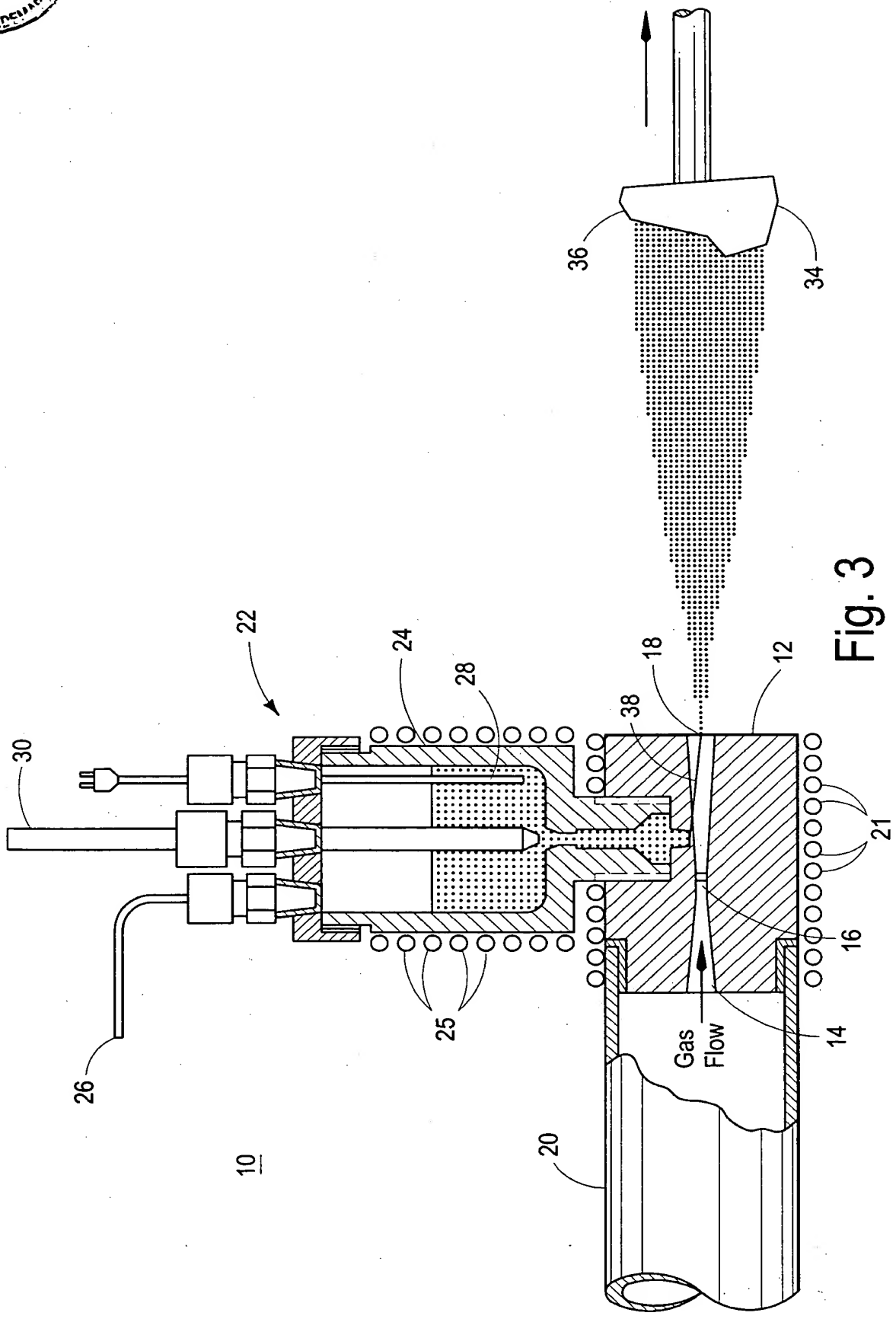


Fig. 3

OIPE JC25
MAR 0 8 2004
PATENT & TRADEMARK

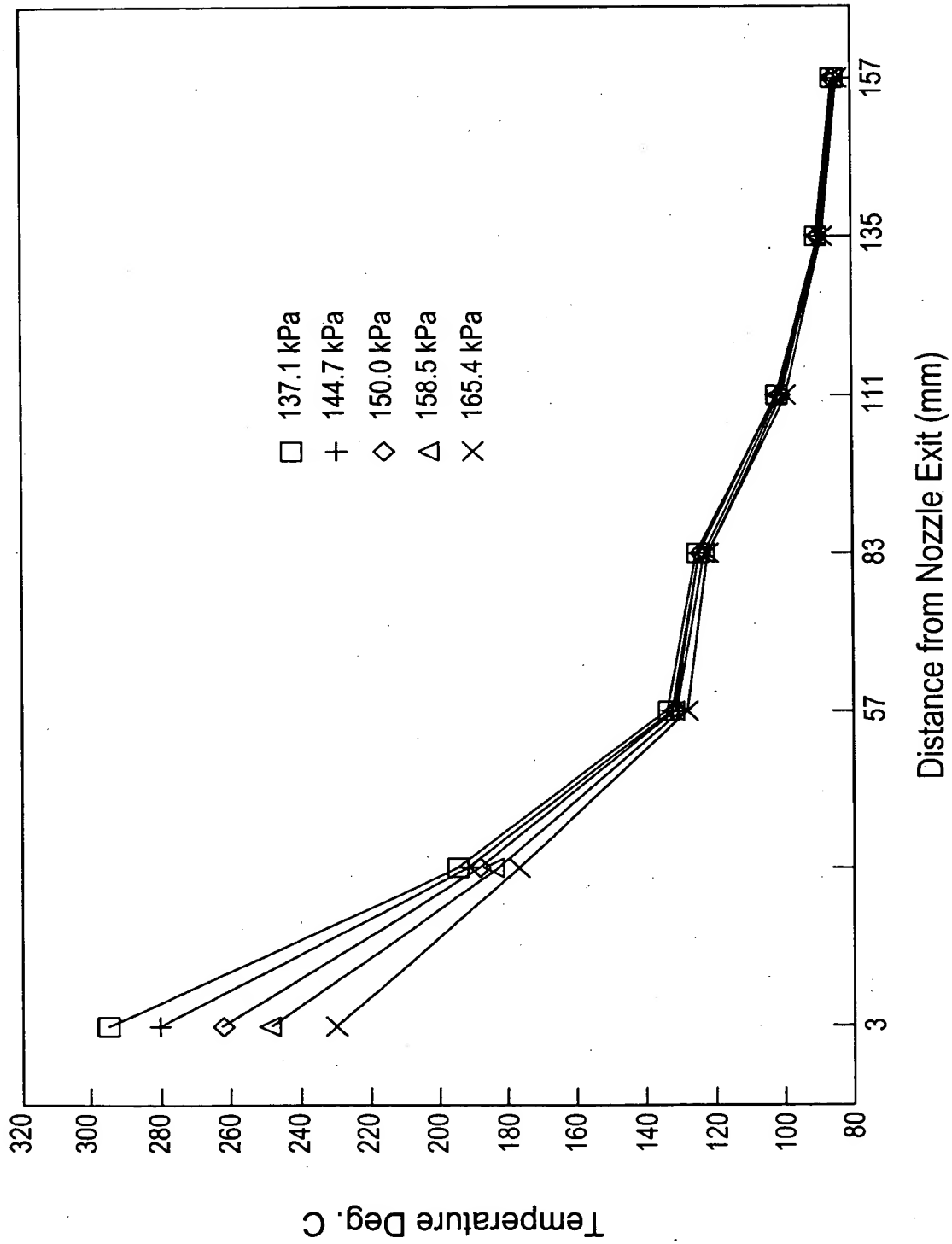


Fig. 4

OIPE JC25
MAR 0 8 2004
PATENT & TRADEMARK OFFICE

Title: Rapid Solidification Processing System for Producing Molds, Dies and Related Tooling
Atty Dkt #: EGG-PI-612A1a
Invventor: Kevin M. McHugh
Atty: Alan D. Kirsch
Phone: 208-526-1371

Nozzle Information

• Nozzle Information:	14.0°
• Exit Angle	14.0°
• Distance from Liquid Orifice to Nozzle Exit (inches)	1.018
• Number of Orifices	6.0
• Orifice Area (square inches)	0.000314
• Total Area of Liquid Orifices (square inches)	0.0019
• Cross Sectional Area of Nozzle Throat (square inches)	0.06
• Cross Sectional Area of Gas Stream at Nozzle Exit (square inches)	0.266

Fig. 4A

Run Time (sec)	TC#1 (°C)	TC#2 (°C)	TC#3 (°C)	TC#4 (°C)	TC#5 (°C)	TC#6 (°C)	Argon TC#7 (°C)	Gas Flow (slpm)
45.5	309.7	165.3	107.7	100.6	86.0	79.5	74.8	253.7
105.5	318.8	190.5	122.6	113.5	92.9	83.9	79.1	283.6
165.5	318.0	199.0	129.8	120.1	97.3	87.0	81.6	305.8
215.5	324.6	201.3	134.5	124.8	101.0	90.0	83.9	329.5
285.5	311.7	200.0	136.0	127.0	102.5	91.1	85.2	355.9
345.5	295.9	196.6	135.3	127.0	102.5	90.6	84.6	381.2
405.5	279.9	194.4	135.1	127.2	102.9	91.2	85.1	412.2
465.5	266.9	190.6	133.4	126.2	101.9	90.6	84.1	439.3
525.5	251.8	186.0	131.9	125.4	101.4	90.1	84.2	474.7
585.5	233.4	180.1	130.3	123.8	100.4	89.5	83.7	504.5
Distance from Nozzle Exit (inches)								
	0.125	1.25	2.25	3.25	4.375	5.312	6.187	

Fig. 4B

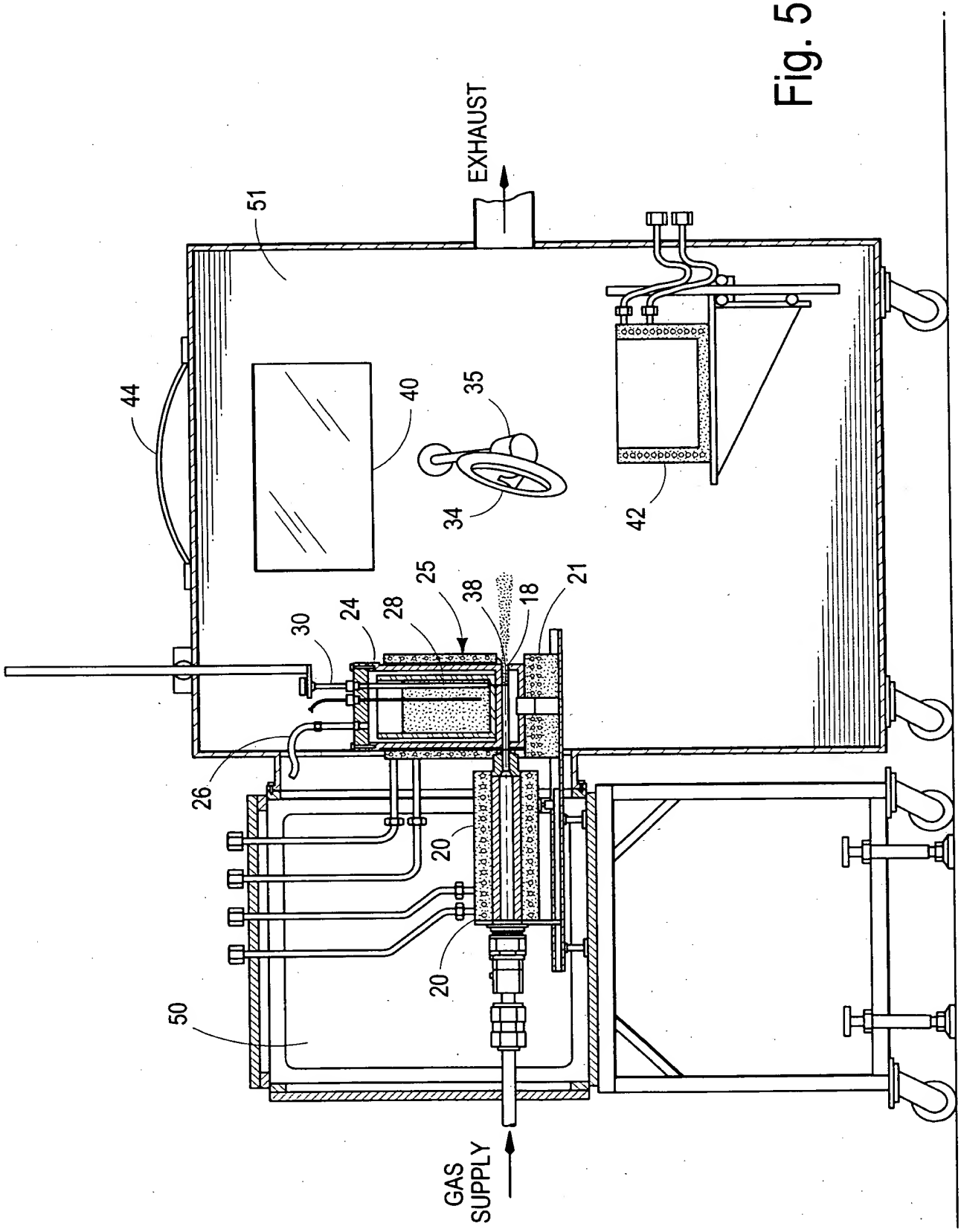
Gas Temperature Nozzle Inlet (°C)	Nozzle Temperature Liquid Orifice (°C)	Chamber Temperature (°C)	Nozzle Inlet Pressure (psia)
552.7	347.9	38.0	15.096
555.8	356.7	39.0	16.168
557.2	362.7	39.7	17.074
548.5	365.0	40.0	18.020
527.3	364.1	41.1	19.003
501.7	359.3	41.9	19.926
476.0	350.9	42.0	20.982
453.9	340.9	43.4	21.928
429.2	329.3	44.0	23.054
409.0	317.4	44.1	23.968

Fig. 4B

OIPE JC25
MAR 08 2004
PATENT & TRADEMARK OFFICE

Title: Rapid Solidification Processing System for Producing Molds, Dies and Related Tooling
Atty Dkt #: EGG-PI-612A1a
Invventor: Kevin M. McHugh
Atty: Alan D. Kirsch
Phone: 208-526-1371

Fig. 5



O I P E JC25
MAR 0 8 2004
PATENT & TRADEMARK OFFICE

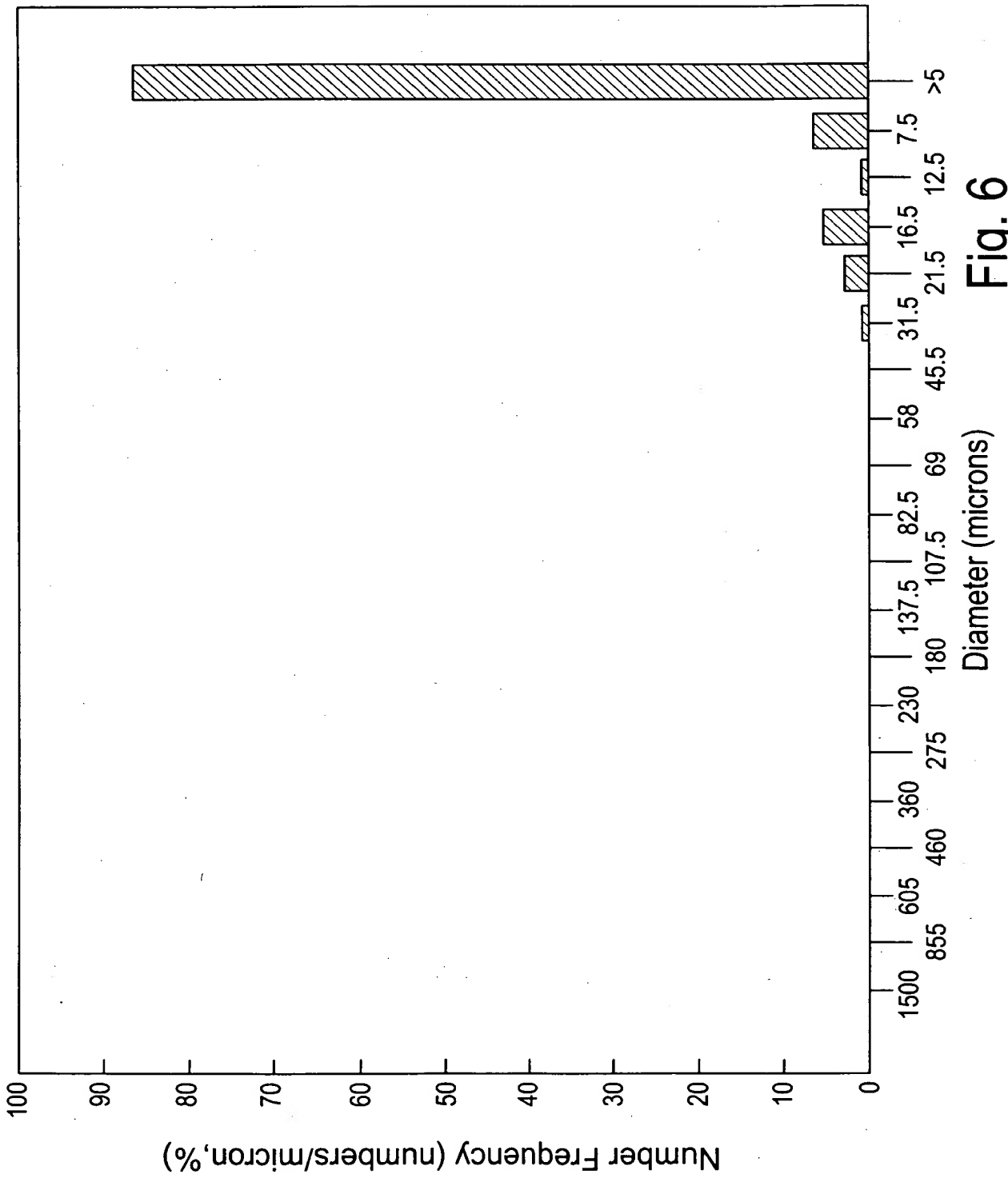


Fig. 6

OIPE
MAR 0 8 2004
PATENT & TRADEMARK OFFICE

Title: Rapid Solidification Processing System for
Producing Molds, Dies and Related Tooling
Atty Dkt #: EGG-PI-612A1a
Invventor: Kevin M. McHugh
Atty: Alan D. Kirsch
Phone: 208-526-1371

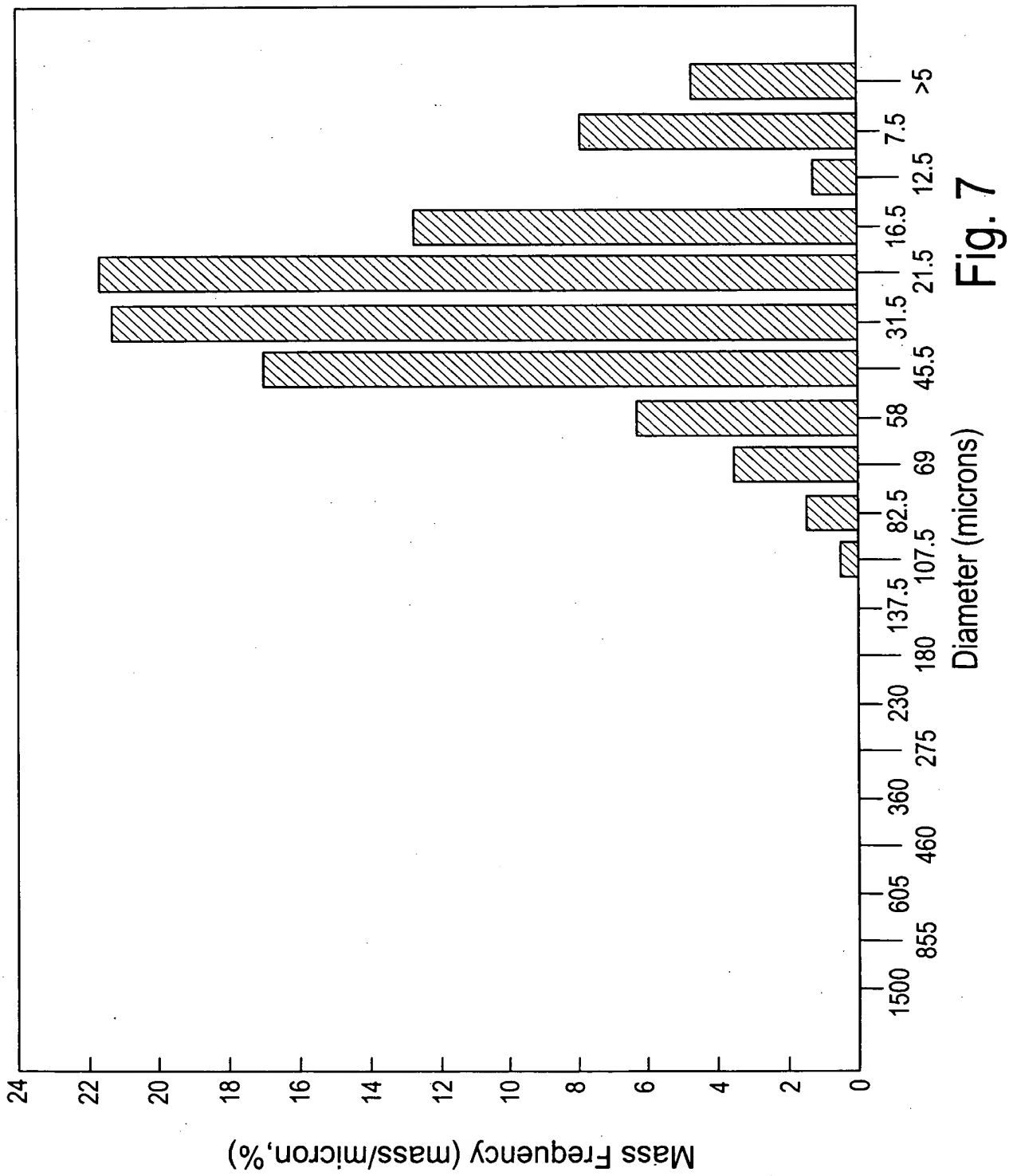


Fig. 7